

Editorial

Osteoporosis



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Osteoporosis is a bone disease that occurs when body loses too much bone, makes too little bone, or both. As a result, bones become weak and may break even from a trivial fall.

The declared osteoporosis decate throughout the world is past 09 years back. The problem remaining same due the lack of awareness among the people and among doctors too is as before, though a beit lesser. Increase of the life expectancy, addiction to spiecy and jung foods, smoking, and alcholal intake, lack of cacium rich diet, lack of Vit D and other minerals in the body are leading to osteoporosis even at this moment when people are some how concious of the problem.

I consider the condition not as disease, but a the change of age and relectancy to the diet habit and life style, because a concious person can take care of his own with minimum effort by changing his life style and diet habit.

Causes and risk factors :

There are several identical risk factor for osteoporosis of which some are modifiable but it is not possible to avoid others. Body continually absorbs old bone and generates new bones to maintain bone density, strength and structural integrity of the bones.

Bone density peaks when a person is in his late 20's and weakened at about 35 years of age. As a person grows older bone break down faster than it rebuilds. Osteoporosis, may develop if the breakdown occurs excessively. It can affect bone of male and female, but it is most likely to occur in women after menopause because of the sudden decrease in estrogen. Estrogen normally protects women against osteoporosis. It is seen that once the people reach 50 years of age 1 in 3 women and 1 in 5 men will experience fracture due to osteoporosis.

Unavoidable factors :

In general unavoidable factors include : —

(i) **Age :** Risk increases after the age of mid 30s and specially after menopause.

(ii) **Reduced sex hormones :** Lower estrogen level appears to make it harder to bone to regenerate.

Ethnicity : White people and Arian people have higher risk than other ethnic group.

Height and weight : Being over 5 feet, 2 inches tall and weighing under 120 pound increase the risks.

Genetic factors : Having a closed family members with a diagnosis of his fractures on osteoporosis, makes osteoporosis likely.

Facture history : A person over fifty years of age with previous fracture after a low level injury is likely to receive a diagnosis of osteoporosis.

Modified risk factors include : (i) Inactivity (ii) Immobility

Weight bearing exercises helps prevent osteoporosis. It places controlled stress on the bone, which encourages bone growth. In people with osteoporosis, the bone become porous, and weaker, increasing the risk fractures, specially in the hip, spinal vertebrae and some peripheral joints suck as the wrists.

Signs and symptoms :

Osteoporosis develops slowly; a person my not know they have it until they experience a fracture of break after a minor incident such as trivial fall. Even caught or sneeze can cause a break in osteoporosis bone. Breaks will occur in hip, wrist or the spinal vertebrae for the people who are osteoporosis. If break occur in spinal vertebrae, it can lead to change in posture, a stoop, and curvature of the spine. People might also notice a decrease in height or their cloths might not fit as well did previously.

INVESTIGATION

BMD : Bone mineral density test — Bone mineral density test uses x-rays to measure the amount of calcium in bones. This test in important for people who are of risk for osteoporosis, specially women and older adults. The test in also referred to a dual x-ray obsorptiometry (DXA). BMD in a measure of bone density, respecting the strength of bone represented by calcium content. The BMD test detects osteopenia (mild bone loss, usually with no symptoms) and osteoporosis (more severe bone loss, which may cause symptoms). According to WHO : A T score 1.0 or above is normal bone density. A T score between - 1.0 and -2.5 means osteopeosia. - 2.5 or lower means osteoporosis with or without fracture.

TREATMENT

Treatment aims to —

- Slow or prevent the development of osteoporosis.
- Prevent fractures.
- Maintain healthy bone mineral density and bone mass.
- Reduce pain.

People at risk of osteoporosis and fractures can use preventive lifestyle measures, suppliments, and certain medication to active these goals.

Drugs that can help, prevent, and treat osteoporosis include :

(1) **Bisphonates** — There are antiresoptive drugs that slow bone loss and reduces a person's fracture risk.

(2) **Estrogen agonists or antagonists** — Doctors also call these selective estrogen receptor modulators. Raloxifene is one example. These can reduce the risk of spine fracture in women following menopause.

- (3) **Calcitonin** — This helps prevent spinal fractures in post menopausal women and can help manage pain after a fracture.
- (4) **Parathyroid hormone, such as teriparatide** — US food and Drugs administration (FDA) has approved this hormone for treating people with a high risk of fracture as it stimulates bone formation.
- (5) **Monoclonal Antibodies** — These are immune therapies that some people with osteoporosis take after menopause.
- (6) Doctors may use stem cell therapy to treat osteoporosis in future. In 2016, researchers found that injecting a particular type of stemcell into mice reversed osteoporosis and bone loss in a way that could also benefit humans.

Other new medications :

Densumab — It is a newer medication shown to reduce the risk of osteoporotic fracture in women and men. Unrelated to bisphosphonate densumab might be used in people who cannot tolerate bisphosphonate, such as with reduced kidney function. Zoledronic acid also known as Zoledronate is a medication used to treat a number of bone diseases, like osteoporosis, high blood calcium due to cancer, bone break down due to cancer and Paget's disease of bone. It is given by injection in the vein.

Scientists believe that genetic factors strongly determine bone density. Researchers are investigating which gene is responsible for bone formation and loss in the hope that this might alter new osteoporotic treatment in future.

Some diseases or medications cause changes in hormone levels and some drugs reduce bone mass.

Medical conditions that increase the risk include :

- (i) Some autoimmune diseases such as rheumatoid arthritis and ankylosing spondylitis.
- (ii) Cushing's syndrome and adrenal gland disorder.
- (iii) Pituitary gland disorders.
- (iv) Hyper thyroidism and hyper parathyroidism.
- (v) A shortage of estrogen and testosterone.
- (vi) Problem with mineral absorption, such as celiac disease.

Medications that raise the risk include :

- (i) Glucocorticoid and corticosteroid including prednisone and prednisolone
- (ii) Thyroid hormone.
- (iii) Anticoagulant and blood thinners, including heparin and warfarin.
- (iv) Protein pump inhibitors and others antacids that adversely affect mineral status.
- (v) Some antidepressant medications.
- (vi) Some vitamin A medications.
- (vii) Thiazide diuretics.
- (viii) Thiazolidinediones used to treat type 2 diabetes decrease bone formation.
- (ix) Some immune suppression agents, such as cyclosporine which increase both resorption and formation.
- (x) Aromatase inhibitors and other treatments that deplete sex hormones such as anastrozole.

- (xi) Some chemotherapeutic agents, including letrozole, used to treat breast cancer and leuprorelin for prostate cancer and other conditions.

PREVENTION

Calcium and Vitamin D intake — Calcium is essential for bone. People should make sure that they consume enough calcium daily. Adults aged 19 years and above should consume 1000 milligram of calcium daily. Women who are over 51 years of age and all adults from 71 years onward should have a daily intake of 1200 mg of calcium daily.

Dietary source of calcium —

- (i) Dairy food such as milk, cheese and yogurt.
- (ii) Green leafy vegetables such as broccoli.
- (iii) Fish with soft bones such as salmon and tuna.
- (iv) Fortified breakfast cereals.

Supplements are an option – Calcium supplements can be purchased from market.

Vitamin – D also play a key role in preventing osteoporosis as it helps the body absorb calcium. Dietary sources include fortified food, saltwater fish and liver. However most vitamin D does not come from food but from sun exposure, so moderate and regular sunlight exposure is recommended.

LIFE STYLE FACTORS

Other ways to minimise the risk are —

- (i) Avoidance of smoking – as this can reduce the bone growth and decrease estrogen level in women.
- (ii) To stop or to limit alcohol intake to encourage healthy bone and to prevent falls.
- (iii) Getting regular weight bearing exercises such as walking as this promotes healthy bones and strengthens their support from muscles.
- (iv) Exercises to promote flexibility and balance, such as yoga, which can reduce the risk of fall and fracture.

The people who already have osteoporosis, nutrition, exercise and fall prevention techniques play a key role in reducing the risk of fracture and the rate of bone loss.

FALL PREVENTION

Tip for fall prevention include —

- (i) Removing the hazards, such as throw rugs and clutter.
- (ii) Having regular vision screening and keeping eyewear up to date.
- (iii) Installing grab bars as for example in the bathroom.
- (iv) Ensuring that there is plenty of light in the home.
- (v) Practicing exercise that helps with balance.
- (vi) Asking doctors to review medications to reduce the risk of dizziness.

OSTEOPENIA

It is the midpoint between the normal healthy bone and osteoporosis. Osteopenia is when the bones are weaker than normal but not so far gone that they break easily, which is the hall mark of osteoporosis.

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